

**What Is Claimed Is:**

1. A method for regulating the current through an electromagnetic actuator (10); the actuator (10), a first switch (11) and a current-measuring circuit (13) forming a series circuit; a free-wheeling diode (15) being parallel-connected to the actuator (10); and the first switch (11) being closed and opened by an automatic control (20) and a pulse generator (22) using a PWM signal (PWM = pulse width modulation) in such a way that the current flowing through the actuator (10) and measured by the current-measuring circuit (13) is regulated to a setpoint value (SW), wherein the time duration (TC) of one on and off switching cycle of the PWM signal is altered, and a so-called dither function in the form of a low-frequency oscillation is superimposed on the PWM signal.

2. The method as recited in Claim 1, wherein in the case of the dither function, a dither value (DW) is added to or subtracted from each pulse of the PWM signal.

3. The method as recited in Claim 2, wherein the time duration (T1) during which the dither value (DW) is added to the pulses of the PWM signal is equal to the time duration (T2) during which the dither value (DW) is subtracted from the pulses.

4. The method as recited in Claim 3, wherein the two time durations (T1, T2) yield a total time duration (TD) which is a multiple of the time duration (TC) of one on and off switching cycle of the PWM signal.

5. The method as recited in one of the preceding claims, wherein the current flowing through the actuator (10) and measured by the current-measuring circuit (13) is freed from the dither function by a corrector (21).

6. The method as recited in Claims 5 and 4,

wherein two current values are measured in the time interval of that time duration (T1) during which the dither value (DW) is added to or subtracted from the pulses of the PWM signal, and an average value of these two measured current values is formed.

7. The method as recited in one of the preceding claims, wherein a diagnostic (23) ascertains the current through the actuator (10) from the measured moments the first switch (11) is switched on and off, and the diagnostic (23) compares this ascertained current to the current measured by the current-measuring circuit (13) and/or to the setpoint value (SW).

8. A computer program having program commands suitable for carrying out the method as recited in one of the preceding claims when they are executed on a computer, particularly a microprocessor.

9. The computer program as recited in Claim 8, characterized by its storage in an electronic storage medium, particularly in a flash memory.

10. A control unit for regulating the current through an electromagnetic actuator (10); the actuator (10), a first switch (11) and a current-measuring circuit (13) forming a series circuit; a free-wheeling diode (15) being parallel-connected to the actuator (10); and the control unit having an automatic control (20) and a pulse generator (22) by which the first switch (11) is closed and opened using a PWM signal (PWM = pulse width modulation) in such a way that the current flowing through the actuator (10) and measured by the current-measuring circuit (13) is regulated to a setpoint value (SW),

wherein the control unit is capable of altering the time duration (TC) of one on and off switching cycle of the PWM signal and superimposing a so-called dither function in the form of a low-frequency oscillation on the PWM signal.

11. The control unit as recited in Claim 10,

characterized by its use in a motor vehicle, particularly in a transmission control of a motor vehicle.